

CLAIMS

1. A method for joining synthetic resin to a metallic plate including the steps of mounting a metallic plate obtained by pressing a metallic blank into a particular shape inside a synthetic resin injection metal mold and injecting synthetic resin into the said metal mold for joining the injected synthetic resin to the metallic plate, wherein the metallic plate is formed to include a curling part on its peripheral edge portion that is curved toward the side of the metallic plate on which the injected synthetic resin is to be joined to the metallic plate, said curling part being formed such that the spacing between the free end of said curling part and the side of the metallic plate on which the injected synthetic resin is to be joined to the metallic plate can be smaller than the space inside said curling part, and wherein the injection of the synthetic resin into the metal mold having the metallic plate set in position occurs against the side of the metallic plate on which the injected synthetic resin is joined to the metallic plate so that part of the injected synthetic resin can enter under pressure into said curling portion, whereby the metallic plate and the injected synthetic resin are joined together.

2. A method for joining synthetic resin to a metallic plate including the steps of mounting a metallic plate obtained by pressing a metallic blank into a particular shape inside a synthetic resin injection metal mold and injecting synthetic resin into the said metal mold for joining the injected synthetic resin to the metallic plate, wherein the metallic plate is formed to include a fold-back part on its peripheral edge portion that is curved toward the side of the metallic plate on which the injected synthetic resin is to be joined to the metallic plate, and wherein the injection of the synthetic resin into the metal mold having the metallic plate set in position occurs against the side of the metallic plate on which the injected synthetic resin is to be jointed to the metallic plate so that part of the injected synthetic resin can enter under

pressure into said fold-back part, thereby expanding the interior of said fold-back part so that it can become larger than the spacing between the free end of said fold-back part and the side of the metallic plate on which the injected synthetic resin is to be joined to the metallic plate, whereby the metallic plate and the injected synthetic resin are joined together.

3. The method for joining synthetic resin to a metallic plate, as defined in Claim 2, wherein with the metallic plate being set in position inside the synthetic resin injection metal mold, a space is provided between the fold-back part formed on the peripheral edge portion of the metallic plate and the part of synthetic resin injection metal mold opposing the said fold-back part, said space being capable of absorbing the expansion of the fold-back part that occurs when part of the injected synthetic resin enter into the fold-back part.

Sub A' 4. The method for joining synthetic resin to a metallic plate, as defined in any one of Claims 1 through 3, wherein with the metallic plate being set in position inside the synthetic resin injection metal mold, the metallic plate includes a part other than the peripheral edge portion of the metallic plate that may become deformed into a curved surface having projections and depressions when it is placed under the pressure of the synthetic resin injected against the side of the metallic plate on which the injected synthetic resin is to be joined to the metallic plate.

5. The method for joining synthetic resin to a metallic plate, as defined in Claim 4, wherein with the metallic plate being set in position inside the synthetic resin injection metal mold, a space is provided between the metal mold and the metallic plate, said space being capable of absorbing the deformation of the part other than the peripheral edge portion of the metallic plate that occurs when it is placed under the pressure of the synthetic resin injected against the side of the metallic plate on which the injected synthetic resin is to be joined to the metallic plate.

Sub A² 6. ~~The method for joining synthetic resin to a metallic plate, as defined~~

English text of Amended Claims under Article 34 of PCT

in any one of Claims 1 through 3, wherein with the metallic plate being set in position inside the synthetic resin injection metal mold, the metallic plate includes a part other than the peripheral edge portion of the metallic plate that has projections and depressions on the surface thereof on the side of the metallic plate on which the injected synthetic resin is to be joined to the metallic plate.

7. The method for joining synthetic resin to a metallic plate, as defined in any one of Claims 1 through 6, wherein the synthetic resin is a transparent synthetic resin.

8. The method for joining synthetic resin to a metallic plate, as defined in any one of Claims 1 through 7, wherein the metallic plate is mounted inside the synthetic resin injection metal mold by using the air pressure.

9. (amended) A method for joining synthetic resin to a metallic plate, wherein the method includes the steps of:

providing a metallic plate obtained by pressing a metal blank, said metallic plate having its joint surface formed into a particular shape;

providing a thermoplastic synthetic resin molded product, said thermoplastic synthetic resin molded product having its joint surface formed into a shape analogous to the particular shape of the metallic plate;

heating the metallic plate; and

making the thermoplastic synthetic resin molded product in direct contact with the heated metallic plate under the applied pressure so that only the part of the thermoplastic synthetic resin molded product that contacts the heated metallic plate is allowed to melt, and the melted synthetic resin is then allowed to harden and contract, whereby the heated metallic plate and the thermoplastic synthetic resin molded product are joined together into a single unit, characterized that

the joint surface of the metallic plate that is to engage the corresponding joint surface of the thermoplastic synthetic resin molded

product is previously formed to have projections and depressions ; and

the thermoplastic synthetic resin molded product has been already contracted before it is directly contacted with the heated metallic plate.

~~10. (deleted)~~

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10. (amended) The method for joining synthetic resin to a metallic plate, as defined in Claim 9, wherein the thermoplastic synthetic resin is a transparent thermoplastic synthetic resin.

11. (amended) The method for joining synthetic resin to a metallic plate, as defined in Claim 9, wherein the step of heating the metallic plate is performed by using a heater.

12. The method for joining synthetic resin to a metallic plate, as defined in Claim 9, wherein the step of heating the metallic plate is performed by means of a high-frequency or low-frequency current induction heating.

13. (added) The method for joining synthetic resin to a metallic plate, as defined in claim 13, wherein an induction heating is conducted by multiple pole arrangement that includes a plurality of individual wires coiled independently of each other.

14. (added) The method for joining synthetic resin to a metallic plate, as defined in claim 9, wherein the projections and depressions formed on the joint surface of the metallic plate is on concentric hexagonal recesses, concentric square recesses or concentric elliptical recesses.

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